

## Chapter 5

# The Interaction between Local and Regional Knowledge-Based Development: Towards a Quadruple Helix Model

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### ABSTRACT

*By the turn of the 21st century, the significance of knowledge to be the key factor in urban and regional development is well established. However, it has been only recently that attempts have been made to identify the specific mechanism and institutional relationships, through which knowledge-based development takes place. In this regard, very little consideration has been given to the ways that different levels of knowledge-based development communicate to each other. This chapter examines the mutual interaction between knowledge-based development in local and regional level in two different sections. The first section builds upon the third wave of economic development supporting the growth of cluster of related firms and relates it to an empirical case study of knowledge-based community development in Queensland- Australia. It concludes that knowledge-based local developments do not evolve without a regional support network. The second section reviews the “Triple Helix” of university–industry–government collaboration as the basis of knowledge-based regional development in the investigated case study. This review determines the central role of local community as an innovation base for the interaction among the key factors, and suggests a promotion for a Quadruple Helix Model where community works alongside business, university and government in the new economy.*

### INTRODUCTION

The digital revolution at the end of 20<sup>th</sup> century has provided great opportunities for communities to play aggressive roles in the new economy and take

active part in the process of knowledge production and distribution. The growing number of home-based teleworkers, e-entrepreneurs and high-rank information workers who are very selective on their residential communities heralds a new era that has already been celebrated (Florida, 2002). Scholars, admitting each community to be a unique instance

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with its special characteristics, search for some general elements that can be adjusted to different knowledge-based local and regional development projects. Here, the common objective of every level of knowledge-based development efforts is the creation of an innovating base to adopt the new technological paradigm and get renewed. To achieve this common objective, different levels of knowledge-based development may adopt atypical mechanisms that are enforced by different scales offering contrasting resources and capabilities. In this regard, very little knowledge has been produced on the effects that different levels of knowledge-based development have on each other. This chapter specifically examines the interaction between knowledge-based development in the local<sup>1</sup> and regional level. It includes two main sections where different sides of the mutual relation between local and regional development is examined. This two-sided elaboration is to guarantee that the benefit of each level - local and regional- is carefully considered.

The first section investigates the progress of knowledge-based local development in conventional larger regions. It presents some empirical data collected from a case study of knowledge-based community development in Queensland, and reviews infrastructural and institutional challenges experienced based on lack of awareness in the regional level. The finding is consistent with the third wave of economic development theory (Blakely, 2001; Herbers, 1990; Ross & Friedman, 1990) that emphasizes on a cluster of related firms as the key factor for prosperity in the new economy. This section notes that local communities may start separately using the powerful mediators like a thoughtful developer, an ambitious local authority and so on. Yet, a long-term knowledge-based progress is impossible unless the larger region realizes the opportunities provided by different communities and supports the growth of specified clusters of related firms at the regional strategy making level. It concludes that knowledge-based local development will not evolve unless a regional

network of knowledge-based firms/communities gets established and works together.

On the other hand, the second section investigates the process of knowledge-based development in larger regions. It reviews the “Triple Helix Model” (Etzkowitz, 2008; Etzkowitz & Klofsten, 2005; Etzkowitz & Leydesdorff, 2000) where university, business and government have been introduced as the key factors behind any knowledge-based regional development. This section examines the role of the “Triple Helix” in the progress of the investigated case study and determines the central role of the community as an innovation base for the interaction among these main factors. It suggests a promotion for a Quadruple Helix Model where community – as innovation base- is as important as business, university and government in the new economy. It concludes that regional knowledge-based developments will not sustain unless all four factors- community, business, university, government- work together.

There is a dearth of articulated/empirical data on the characteristics of knowledge-based developments in Australia. This was the incentive for a study that this chapter is reviewing some of its preliminary finding regarding the relation between local and regional knowledge-based development. This finding is based on in-depth interviews and participatory observation in a case study of knowledge-based development in Queensland namely Varsity Lakes that has been planned as a smart mixed-use residential community offering live/work opportunities to the residents through the telecommunication technologies (Bajracharya & Allison, 2008). This study conducted interviews with a purposeful sample of residents and key informants at the community. The interviews were done with people representing main stakeholders and institutional spheres in the community such as office park and incubator directors, Lend Lease (the developer), Bond University, Gold Coast City Council, private firms, small business support networks, and residents’ community groups. The

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